

Short-Wave Antennas

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6/8

TROSHIN, V.D.; BELOUSOV, S.S.

Hyperreflexia of the carotid sinus and coronary insufficiency.
Sov.med. 28 no.7:21-23 JI '65. (MIRA 18:8)

1. Klinika nervnykh bolezney (zav. - dotsent Ye.F.Semenova) i
klinika fakul'tetskoy terapii (zav. - prof. A.I.Gefter) Gort-
kovskogo meditsinskogo instituta imeni S.M.Kirova.

BELOUSOV, S. S.

USSR / Human and Animal Physiology. Blood Circulation. T
The Heart.

Abs Jour: Ref Zhur-Biol., No 22, 1958, 101874.

Author : Gafter, A. I.; Matusova, A. P.; Belousov, S. S.

Inst : Not given.

Title : On the Problem of Diagnostic and Prognostic Value
of Ballistocardiography in Coronary Insufficiency.

Orig Pub: Terapevt. arkhiv, 1957, 29, No 7, 26-32.

Abstract: The results of ballistocardiographic investigations of 75 patients with coronary insufficiency and 42 healthy individuals, compared with ECG data, lead the authors to conclude the diagnostic and prognostic value of ballistocardiography in coronary insufficiency.

Card 1/1

BELOUSOV, S.S., Cand Med Sci -- (diss) "^{Hand}Clinical ~~significance~~
of ballistocardiography in stenocardia." Gor'kiy, 1958, 12
pp (Gor'kiy State Med Inst im S.M. Kirov) 200 copies
(KL, 28, 58, 109)

BELOUSOV, S.S.

Variants of ballistocardiograms for clinically healthy persons.
Vrach.delo no.7:689-693 J1'58 (MIRA 11:9)

1. Kafedra fakul'tetskoy terapii (zav. - prof. A.I. Gefter) Gor'kovskogo
meditsinskogo instituta.
(BALLISTOCARDIOGRAPHY)

GEFTER, A.I., prof., MATUSOVA, A.P., kand.med.nauk, BELOUSOV, S.S., V'YUKHIN, L.T.

Technic of direct ballistocardiography; description of a model of an
electromagnetic ballistocardiographic recorder. Terap.arkh. 30
no.6:81-84 Je '58 (MIRA 11:7)

1. Iz kafedry fakul'tetskoy terapii (zav. - prof. A.I. Gefter)
Gor'kovskogo meditsinskogo instituta imeni S.M. Kirova.
(BALLISTOCARDIOGRAPHY, appar. & instruments,
electromagnetic unit (Rus))

BELOUSOV, S.V.

Left appendicitis in a congenital anomaly of the large intestine. Sov. med. 25 no.2:146-147 F '62. (MIRA 15:3)

1. Iz khirurgicheskogo otdeleniya (zav. S.V. Belousov)
Kovrovskoy gorodskoy bol'nitsy Vladimirovskoy oblasti No.1.
(APPENDICITIS)
(VISCERA—ABNORMITIES AND DEFORMITIES)

ILLEGIBLE

BELOUSOV, V., inzh.

Automatic blocking of driver cabs of electric locomotives. Bezop.
truda v prom. 2 no.4:34 Ap '58. (MIRA 11:4)

1. Kusnetkiy metallurgicheskiy kombinat.
(Electric locomotives)

BELOUSOV, V. (UA3CA)

How to fill out the QSL cards. Radio no.5:22 My '62.

(Radio operators)

(MIRA 15:5)

BELOUSOV, V., pensioner; GONCHARENKO, V., tekhnicheskiy inspektor;
ZOBACHEV, K.; MANAFOV, G.; KOLOGRIV, P.; KABAKOV, Yu., instruktor

We suggest, study and confer. Sov. profsoiuzy 17 no.24:17-18
D '61. (MIRA 14:12)

1. Oblastnoy komitet profsoyuza rabochikh metallurgicheskoy
promyshlennosti, g. Magadan (for Zobachev). 2. Zaveduyushchiy
otdelom truda i zarabotnoy platy Azerbydzhanskogo soveta prof-
soyuzov (for Manafov). 3. Neshtatnyy korrespondent zhurnala
"Sovetskiye profsoyuzy", g. Khabarovsk (for Kologriv). 4.
Chernigovskiy oblastnoy sovetskiy professional'nykh soyuzov
(for Kabakov).

(Industrial hygiene) (Trade unions)

BELOUSOV, V. I. (1928).

Student produced in a radio laboratory, radio number 100-87,03 25 '65.

1 6968-66 TCH/JT

ACC NR: AP6001056 SOURCE CODE: UR/0107/65/000/001/0056/0057

AUTHOR: Balousov, V. (Engr.) 26
B

ORG: none

TITLE: Administration of patents in the field of radio engineering and electronics

SOURCE: Radio, no.1, 1965, 56-57 and 63

TOPIC TAGS: radio engineering, electronics, scientific policy

ABSTRACT: Every Soviet citizen has the right to file with the USSR State Committee for Inventions and Discoveries an application for a supposed invention, and to obtain an author's certificate, retroactive to the date of filing, if the subject of the application is recognised to be an invention. In the Soviet Union -- unlike in capitalist countries -- the problem of the practical application of an invention for which an author's certificate has been issued is solved by the government itself, including the question of applying for patents and selling patent licenses in foreign countries. On the other hand, when issuing an author's certificate on an application, the government -- acting for the enterprise concerned -- advances the inventors a monetary compensation from 20 to 200 rubles, but not more than 50 rubles per author. If the invention is applied in the national economy, the inventor gets an additional monetary compensation of up to 20,000 rubles (including the advance paid upon the issuance of the author's certificate). In order to protect the interests of the government in connection with patenting the inventions in foreign countries, the

Card 1/2

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ACC NR: AP6001056

applicants should not reveal in any way the essence of their supposed inventions. If the essence of the supposed invention has been published (not including publication for official use) prior to filing the application with the USSR State Committee for Inventions and Discoveries, the applicant's claim cannot be protected by means of an author's certificate. After filing the application, the applicants may disclose the essence of their claims only with the consent of the registration division of the State Committee (in this case an author's certificate may be issued). An operating device or model constructed in accordance with the supposed invention may be demonstrated at exhibits only with the consent of the State Committee. [JPRS]

SUB CODE: 17, 05 / SUBM DATE: none

Card 2/2 *ids*

BELJUSOV, V., kand. arkhitektury

Building tower-type apartment houses in Yugoslavia.
Zhil. stroi. no.2:28-31 '64. (MIRA 18:11)

22(1)

SOV/3-59-3-11/48

AUTHOR: Belousov, V.A.

TITLE: Our Readers Suggest (Nashi chitateli predlagayut)

PERIODICAL: Vestnik vysshey shkoly, 1959, Nr 3, pp 25-26 (USSR)

ABSTRACT: The author suggests that the pedagogical vuzes be specialized, i.e. that teachers for rural and urban schools be trained separately. The pedagogical vuzes should admit boys and girls with a work record in the corresponding field of production and an inclination for pedagogical activity. Further, when drawing up the curricula for pedagogical institutes, the number of hours assigned for pedagogical practice should be considerably increased without overtaxing the student.

ASSOCIATION: Borisoglebskiy pedagogicheskiy institut (Borisoglebsk Pedagogical Institute)

Card 1/1

BELOUSOV - LA

LIBERMAN, K.D., vrach; SHTEYNBERG, S.Ya., professor, doktor meditsinskikh nauk, redaktor; BELOUSOV, V.A., professor doktor meditsinskikh nauk, redaktor

[Rheumatism; a bibliography of Soviet literature published from 1934 to 1953] Revmatizm; bibliografiia otechestvennoi literatury 1934-1953 gg. Khar'kov, 1954. 237 p. (MLBA 10:8)

1. Glavnyy bibliograf Khar'kovskoy gosudarstvennoy nauchno-meditsinskoy biblioteki (for Liberman). 2. Kharkov. Gosudarstvennaya nauchno-meditsinskaya biblioteka.

(BIBLIOGRAPHY--RHEUMATIC FEVER)

BELOUSOV, V.A., prof. (Khar'kov)

Apropos of Professor A.T. Petriaeva's article, "Some controversial
questions in contemporary pediatrics." *Pediatrics* no.7:66-67 '62.
(MIRA 15:12)

(PEDIATRICS) (PETRIAEVA, A.T.)

BELOUSOV, V.A., prof.; FRIDMAN, R.A., red.; PETROVA, N.K., tekhn.
red.

[Manual on children's diseases] Uchebnik detskikh boleznei.
Moskva, Medgiz, 1963. 398 p. (MIRA 16:12)

1. Chlen-korrespondent AMN SSSR (for Belousov).
(PEDIATRICS)

LEVIN, Mark Mironovich, prof.; ZADOROZHNYI, B.A., dotsent, red.;
BELOUSOV, V.A., prof., red.; BOKARIUS, N.N., prof., red.;
VOROB'YEV, F.P., assistant, red.; GRISHCHENKO, I.I., prof., red.;
DERKACH, V.S., prof., red.; KORSUN', A.Ya., dotsent, red.;
KOSHKIN, M.L., prof., red.; KUDINTSEV, V.I., dotsent, red.;
PIKIN, K.I., prof., red.; PRIKHOD'KOVA, Ye.K., prof., red.;
POPOV, I.D., dotsent, red.; SOLOV'YEV, M.N., prof., red.;
SHTEYNBERG, S.Ya., prof., red.; KHARCHENKO, N.S., prof., red.

[Repeated surgery in stomach diseases following operations]
Povtornye operatsii pri zabolevaniakh operirovannogo zheludka.
Khar'kov, Izd-vo Khar'kovskogo gos.univ., 1961. 177 p.
(Kharkov. Medychnyi institut. Trudy, vol.58). (MIRA 16:2)
(STOMACH--SURGERY)

BELOUSOV, V. D.

USSR/Human and Animal Physiology (Normal and Pathological) T
The Effect of Physical Factors. Ionizing Irradiation

Abs Jour : Ref Zhur Biol., No 6, 1959, 27194

Author : Belousov, V.D.

Inst :

Title : Clinical and Hematological Indexes of Experimental
Radiation Sickness in Irradiation with a Small Roent-
gen Dose.

Orig Pub : Zdravookhraneniye (Kishinev), 1958, No 2, 55-58

Abstract : No abstract.

Card 1/1

BILLOUSOV, V.D.

Fractures of the distal metaepiphysis of the humerus in childhood. Zdravookhranenie 2 no.6:25-28 N-D '59. (MIRA 13:6)

1. Iz kafedry khirurgii detskogo Vozrasta (sav. - doktor med. nauk N.K. Georgiu) Kishinevskogo meditsinskogo instituta.
(HUMERUS--FRACTURE)

BELOUSOV, V.D.

Improved method for use of nasopharyngeal narcosis. Zdravookhranenie 3 no.1:52-53 Ja-F '60. (MIRA 13:6)

1. Iz kliniki khirurgii detskogo vozrasta (sav. - doktor med. nauk N.K. Georgiu) Kishinevskogo meditsinskogo instituta.
(ANESTHESIOLOGY--APPARATUS AND INSTRUMENTS)

BELOUSOV, V.D.

Results of treating tibial fracture in puppies exposed to X rays.
Zdravookhraneni 4 no. 1:18-22 Ja-F '61. (MIRA 14:2)

1. Iz kafedry khirurgii detskogo vozrasta (zav. - prof. N.K.
Georgiu) Kishinevskogo meditsinskogo instituta.
(RADIATION SICKNESS) (TIBIA--FRACTURE)

BELOUSOV, V.D.; VATSURO, G.I.

Morphological changes in the liver in a combined lesion in puppies
in an experiment. Zdravookhranenie 5 no.1:42-46 Ja-P '62.

(MIRA 15:4)

1. Iz kafedry khirurgii detskogo vozrasta (zav. prof. N.K.Georgiu)
Kishinevskogo meditsinskogo instituta i Respublikanskoy detskoy
klinicheskoy bol'nitsy (glavnyy vrach S.S.Strungaru).

(LIVER)

(RADIATION--PHYSIOLOGICAL EFFECT)

ILLEGIBLE

ILLEGIBLE

BELCHSOV, V.D., Cand Phys-Math Sci--(disc) "Studies ^{on} ~~in~~ the theory of
quasigroups and magnifiers." Mos, 1957. 7 pp (Mos State U in I.V. Lenensev.
Mech ~~Faculty~~-Math Faculty), 100 copies (11,25-10, 105)

68001

46(1) 16.2000

SOV/155-58-6-2/36

AUTHOR: Belousov, V.D.TITLE: On the Structure of D-Quasi GroupsPERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki,
1958, Nr 6, pp 8-13 (USSR)ABSTRACT: A quasi group $G = \{a, b, c, \dots\}$ in which there exist three substitutions φ, ψ, χ , such that for all a, b, c it holds :

$$(1) \quad (ab)c = \varphi a(\psi b \cdot \chi c)$$

is called D-quasi group. The D-quasi groups are identical with the D-groups of [Ref 1].

Theorem 1 : Each D-quasi group is isotopic to a group.

Theorem 2 : Two automorphisms $\tilde{\pi}$ and φ of the group $G(\circ)$ (see [Ref 2]) and an element q exist, such that it is

$$(14) \quad ab = \tilde{\pi} a \circ q \circ \varphi b.$$

Theorem 3 : Let $G(\circ)$ with the automorphisms $\tilde{\pi}$ and φ and the element q be given.. If $G(\bullet)$ is defined by (14), then $G(\bullet)$ is a D-quasi group. X

Card 1/2

68001

On the Structure of D-Quasi Groups

SOV/155-58-6-2/30

There are 2 non-Soviet references, 1 of which is American,
and 1 German.

ASSOCIATION: Pedagogicheskiy institut g. Bel'tsy, Mold. SSR
(Pedagogical Institute of Bel'tsy, Moldavian SSR)

SUBMITTED: December 31, 1957 (Uspekhi matematicheskikh nauk)
October 24, 1958 (Nauchnyye doklady vysshey shkoly. Fiziko-
matematicheskiye nauki)

X

Card 2/2

AUTHOR: BELEUSOV, V.D. (Bel'tsy, Moldavian SSR) 41-1-2/15

TITLE: Transitive Distributive quasi-groups (Pranzitivnyye distributivnyye kvasigruppy)

PERIODICAL: Ukrainskiy Matematicheskiy Zhurnal, 1958, Vol 10, Nr 1, pp 13-22
(USSR)

ABSTRACT: The author gives a complete description of the transitive distributive quasi-groups by reduction of these quasi-groups to abelian groups.

§ 1. Definition: Let A be a (binary, reversible) operation defined on the set $K = \{a, b, c, \dots\}$. The substitution φ of K is denoted as a regular substitution of the operation A , if there is a substitution φ^* , corresponding to φ , so that for $a, b \in K$ it holds: $A(\varphi a, b) = A(a, \varphi^* b)$.

Lemma: The set G_A of all regular substitutions of A forms a group.

Lemma: From $\varphi a_0 = \varphi^* a_0$; $\varphi, \varphi^* \in G_A$ it follows $\varphi = \varphi^*$.

Lemma: Let B and A be isotopic (see [Ref.1]). Then G_B and G_A are conjugate in the group of all substitutions of K .

Lemma: A transitive loop (see [Ref.1]) is a group.

§ 2. Theorem: Let A be a transitive distributive quasi-group

Card 1/2

Transitive Distributive Quasi-groups

41-1-2/15

which is defined on M . Then an abelian group $K(+)$ can be defined in K so that it possesses two automorphisms ξ and η (whereby it is $\xi + \eta = \epsilon$, where ϵ is the identical automorphism) with the property that $A(a,b) = \xi a + \eta b$.

Theorem: Inversion of the preceding one.

§ 3. Theorem: A transitive distributive quasi-group of order n exists if and only if $n \neq 2(2s+1)$, where s is an arbitrary non-negative integer. Theorem: Each sub-quasi-group of a transitive distributive quasi-group is normal.

Theorem: A quasi-group is transitive and distributive if and only if it is medial (see [Ref.4]) and idempotent.

In a footnote one finds the remark that the author recently succeeded in showing that not every distributive quasi-group must be absolutely transitive (Communication at the Algebraic Union Symposium in Moscow, 3 - 6 February 1958). 1 Soviet and 3 foreign references are quoted.

SUBMITTED: 6 December 1956

AVAILABLE: Library of Congress

1. Mathematics-Theory 2. Abelian groups

Card 2/2

AUTHOR: Belousov, V.D. (Bel'tsy)

SOV/42-13-3-23/41

TITLE: On the Structure of Distributive Quasigroups (O strukture distributivnykh kvazigrupp)

PERIODICAL: Uspekhi matematicheskikh nauk, 1958, Vol 13, Nr 3, pp 235-236 (USSR)

ABSTRACT: The quasigroup $M(o)$ is called distributive if

$$xo(yoz) = (xoy)o(xoz), \quad (yoz)ox = (yox)o(zox)$$

holds for all $x, y, z \in M$.

Theorem: Every distributive quasigroup is isotope to a commutative Moufang-loop.

(The quasigroup $M(\cdot)$ is called a commutative Moufang-loop if $x \cdot y = y \cdot x$, $(x \cdot y) \cdot (y \cdot z) = (x \cdot y) \cdot (x \cdot z)$ for all $x, y, z \in M$).

Theorem: The distributive factor-quasigroup $M(o)/H(o)$, where $H(o)$ is a normal subquasigroup defined according to Klokemeister, is isotopic to the commutative factor-loop of Moufang $M(\cdot)/H(\cdot)$.

Let φ be a regular substitution of $M(o)$, i.e. for arbitrary $x, x' \in M$ there holds $\varphi xoy = x'o\varphi*y$, where φ^* is a certain other substitution. The totality of the φ forms the group C_o . Let $C_o(1)$

be the set of all elements $\varphi 1$, where φ runs through the whole group C_o and 1 is the unity of $M(\cdot)$. If $C_o(1) = M$, then $M(o)$ is

Card 1/2 called transitive.

On the Structure of Distributive Quasigroups

SOV/42-13-3-23/41

Theorem: The set of elements of $C_0(1)$ is a normal transitive subquasigroup of $M(o)$ and $M(o)/C_0(1)$ is a distributive TS-quasigroup according to Brook.

Theorem: If for $a, b, c, d \in M(o)$ the condition

$$(aob)o(cod) = (aoc)o(bod)$$

is satisfied, then they generate a transitive distributive subquasigroup.

Theorem: Arbitrary three elements of $M(o)$ generate a transitive distributive subquasigroup.

Theorem: Every commutative Moufang-loop of odd order is isotopic to a commutative distributive quasigroup.

The well-known commutative Moufang-loop with 81 elements gives an example for non-transitive distributive quasigroups.

AUTHOR: Belousov, V.D. (Bel'tsy) SOV/42-13-3-32/41

TITLE: Associative Systems of Quasigroups (Assotsiativnyye sistemy kvazigrupp)

PERIODICAL: Uspekhi matematicheskikh nauk, 1958, Vol 13, Nr 3, p 243 (USSR)

ABSTRACT: Let $M = \{a, b, c, \dots\}$ be a finite or infinite set. Let Ω_M be the set of all binary operations A, B, C, \dots with respect to which M is a quasigroup. The system $\Sigma \subset \Omega_M$ is called associative from the left if to all $A, B \in \Sigma$ there exist $A', B' \in \Sigma$ such that

$$(1) \quad A[B(a, b), c] = A'[a, B'(b, c)]$$

for all $a, b, c \in M$.

Theorem 1: If for four operations A, B, A', B' (1) is valid, then they are isotopic to one group.

Theorem 2: Let Σ be left-associative. Then every operation $A \in \Sigma$ has the form

$$(2) \quad A(a, b) = \varphi a \cdot t \cdot \psi b,$$

where " \cdot " is the sign of multiplication of a certain group defined on M ; φ, ψ are automorphisms of this group and t denotes a fixed element of M .

Card 1/2

Associative Systems of Quasigroups

SOV/42-13-3-32/41

From theorem 1 there follows a simple proof of a theorem due to Schaufler [Ref 1]. Putting in (2) $\varphi = \psi = 1$ and if t runs through the whole noncyclic group of fourth order, then one obtains the example of the associative system due to Schaufler [Ref 1].
There is 1 German reference.

Card 2/2

AUTHOR: Belousov, V.D. (Bel'tsy, Moldavian SSR) 39-45-1-4/6
TITLE: ~~Derivative~~ Derivative Operations and the Associators in Loops (Proizvodnyye operatsii i assotsiatory v lupakh)
PERIODICAL: Matematicheskii Sbornik, Vol 45, Nr 1, pp 51-70 (USSR) (458)
ABSTRACT: Let $(A)^l$, $(A)^m$, $(A)^r$ be the left, the medium and the right associator of the loop A (see Garrison [Ref 2]). An ordered triple of groups (G_1, G_2, G_3) which are isomorphic to the associators $(A)^l$, $(A)^m$, $(A)^r$ of A , the author calls type A . If G is a group, then its type is (G, G, G) . The author proves the existence of loops with prescribed type, furthermore that the type is invariant under isotopy and that there are nonisotopic loops having the same type. Thereby the author obtains a classification which is more general than that basing on the isotopy. With the aid of the notion of a derivative operation used by the author the type-notion can be extended to arbitrary quasigroups. Finally the author proves for abelian loops the conversion of the theorem of Albert [Ref 5], i.e. if a loop is isotopic to a group, then it is isomorphic to it. There are 7 American references.

Card 1/1
SUBMITTED: December 1, 1956
AVAILABLE: Library of Congress

BE LOUSSOU, H.D.

16(1) PHASE I BOOK EXPLOITATION SOV/2660

Vsesoyuzny matematicheskiy s'yezd. 3rd, Moscow, 1956

Trudy. t. 4: Kratkiye soobsheniya sektsionnykh doklady i inostrannykh uchennykh (Transactions of the 3rd All-Union Mathematical Conference in Moscow, vol. 4: Summary of Sectional Reports. Reports of Foreign Scientists) Moscow, Izd-vo AN SSSR, 1959. 247 p. 2,200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Matematicheskiy institut.

Tech. Ed.: G.M. Shevchanko; Editorial Board: A.A. Abramov, V.G. Boltyanskii, A.M. Vasil'yev, B.V. Medvedev, A.D. Myshkis, S.M. Nikolskiy (Imp. Sec.), A.G. Postnikov, Yu. V. Prokhorov, L.A. Shabat, P. G. Shabat, V.A. Uspenskiy, B.G. Chetaev, G. Ye. Shilov, and A.I. Shirshov.

PURPOSE: This book is intended for mathematicians and physicists.

COVERAGE: The book is Volume IV of the Transactions of the Third All-Union Mathematical Conference, held in June and July 1956. The book is divided into two parts. The first part contains summaries of the papers presented by Soviet scientists. The second part contains the text of reports submitted to the editor by non-Soviet scientists. In those cases when the non-Soviet scientist's name is not given in the title of the paper, a copy of his paper to the editor, the title of the paper, and the name of the author are given in the previous volume. Reference is made to the appropriate volume. The book covers both Soviet and non-Soviet, cover various topics in number theory, algebra, differential and integral equations, function theory, functional analysis, probability theory, topology, mathematical physics, and physics, computational mathematics, mathematical logic, the foundations of mathematics, and the history of mathematics.

Editor: P.M. (Leningrad). On certain integer indeterminate equations

Fel'dman, A.M. (Moscow). The value of trigonometric sums with exponential functions which cannot be improved (Dokl. Akad. Nauk SSSR, No. 2, (1956))

Section on Algebra

Dalakov, V.D. (Bel'gor). Certain problems of the theory of quasigroups and loops

Karpov, M.L. (Perm'). Factorization of locally finite groups with finite classes of Sylow subgroups

Card 3/34

ACZEL, J. (Debrecen); BELOUSOV, V.D. (Beltsy, U.S.S.R.); HOSSZU, M.
(Miskolc)

Generalized associativity and bisymmetry on quasigroups. Acta mat
Hung 11 no.1/2:127-136 '60. (EEAI 9:12)

1. Presented by A.Renyi.
(Functional equations) (Groups, Theory of)
(Numbers, Theory of) (Curves)

BELOUSOV, V.D. (Bel'tsy)

Structure of distributive quasigroups. Mat.sbor. 50 no.3:
267-298 Mr '60. (MIRA 13:6)
(Groups, Theory of)

BELOUSOV, V.D. (Bel'tsy)

Systems of quasi-groups which are associative in the large. Mat.
sbor. 55 no.1:221-236 S 161. (MIRA 14:10)
(Group Theory of)

BELOUSOV, V.D.

On a class of left-distributive quasi-groups. *Izv. vys. ucheb.
zav.; mat.* no.1:16-20 '63. (MIRA 16:5)

1. Bel'tskiy gosudarstvennyy pedagogicheskiy institut imeni A.Russo.
(Groups, Theory of)

BELOUSOV, V.D.

Systems of quasi-groups with generalized identities. *Usp. mat. nauk* 20 no.1:75-146 Jan-F 1965. (MIRA 18:4)

ANDRUNAKIYEVICH, V.A., akademik, otz. red., COKHBERG, I.Ts.,
doktor fiz.-matem. nauk, red.; BELOUSOV, V.D., kand.
fiz.-matem. nauk, red.; SIBIRSKIY, K.S., kand. fiz.-
matem. nauk, red.; MAL'TSEVA, I., red.

[Studies in algebra and mathematical analysis] Issledovaniya po algebre i matematicheskomu analizu. Kazanskaya Kartia moldeveniaske, 1965. 128 p. (MIRA 18-01)

1. Akademiya nauk Moldavskoy SSh. Institut matematicheskogo vychislitel'nogo tsentra.

BELOUSOV, V. D.

"Noneothermal Flow of Gas in Pipes." Sub 4 Nov 47, Moscow Order of
the Labor Red Banner Petroleum Inst imeni Academician I. M. Gubkin

Dissertations presented for degrees in science and engineering in Moscow
in 1947

SO: Sum No. 457, 18 Apr 55

BELOUSOV, V.D.; KAS'YANOV, V.M.

**Calculation of main gas pipelines. Trudy MNI no.13:202-213 '53.
(Gas, Natural--Pipelines) (MLRA 8:6)**

ILLEGIBLE

Belousov, V. [D]

BELOUSOV, V.

"Protection of pressure pipelines". L. IA. TSikerman. Reviewed by
V. Belousov. Zhil.-kom.khoz. 5 no. 5:30 '55. (MIRA 8:11)
(Pipelines) (TSikerman, L. IA.)

ILLEGIBLE

BELOUSOV, V.D.; TSIKERMAN, L.Ya.; BOBROVSKIY, S.A.

Use of automatic safety devices on main pipelines. Neft.khos. 34
no.2:54-60 F '56. (MLBA 9:5)

(Petroleum--Pipelines)

YABLONSKIY, Vsevolod Sergeyevich, prof.; BELOUSOV, Vladimir Dmitriyevich,
dotsent; KULIKOV, A.A., inzh., retsentsent; SOLGANIK, G.Ya.,
vedushchiy red.; FEDOTOVA, I.G., tekhn.red.

[Planning petroleum and gas pipelines] Proektirovanie nefte-
gazoprovodov. Moskva, Gos.nauchno-tekhn.isd-vo nef. i gorno-
toplivnoi lit-ry, 1959. 288 p. (MIRA 13:2)
(Pipelines)

BELOUSOV, V.D.; GALIULLIN, Z.T.; CHERNIKIN, V.I.

Optimum parameters of multiple-thread gas pipelines. Gaz. prom. 6
no.3:34-37 '61. (MIRA 14:3)
(Gas, Natural--Pipelines)

BELOUSOV, V.D.; GALIULLIN, Z.T.; CHERNIKIN, V.I.

Optimum parameters of gas mains. Trudy MINKHIGP no.45:3-11
'63. (MIRA 16:7)
(Gas pipes)

NEMUDROV, A.G.; BELOUSOV, V.D.; CHERNIKIN, V.I.

Regulating the operation of gas mains with gas engine
compressor stations. Trudy MINKHIGP no.45:139-148 '63.
(MIRA 16:7)

(Gas pipes) (Compressors)

BELOUSOV V.F.

BELOUSOV, V.F., inshener

Testing a cutter chain with a reduced number of picks on KMP and
KDBMP cutting machines. Nauch.rab. VUGI no.11:29-37 '54.
(MIRA 8:11)

(Coal mining machinery)

BELOUSOV, V.F., inzh.; REMARCHUK, V.A., inzh.

Unification of the pressure mechanisms of the SE-3 and EKG-4
excavators. Mekh.stroi. 19 no.3:20-21 Mr '62. (MIRA 15:3)
(Excavating machinery)

BRLOUSOV, V.G., insh.

New electric safety measures in coal pits. Bezop.truda v prom. (MIRA 11:4)
2 no.4:8-10 Ap '58.
(Coal mines and mining--Safety measures)

BELOUSOV, V. G.

ALATORTSEV, S.A., prof., doktor tekhn.nauk; ANDREYEV, A.V., kand.tekhn.nauk; ANCHAROV, I.L., inzh.; BALINSKIY, S.I., inzh.; ~~BELOUSOV, V.G.~~, inzh.; VINNITSKIY, K.Ye., kand.tekhn.nauk; VLASOV, V.V., inzh.; VORONTSOV, N.P., kand.tekhn.nauk; GIPSMAN, M.K., inzh.; GLUZMAN, I.S., kand.tekhn.nauk; GUR'YEV, S.V., kand.tekhn.nauk [deceased]; DEMIN, A.M., kand.tekhn.nauk; YEGORNOV, G.P., kand.tekhn.nauk; YEFIMOV, I.P., inzh.; ZHUKOV, L.I., kand.tekhn.nauk; ZEL'TSER, N.M., inzh.; KOSACHEV, M.N., kand.tekhn.nauk; KOTOV, A.F., inzh.; KUDINOV, G.P., inzh.; LAPOVENKO, N.A., kand.tekhn.nauk; MAZUROK, S.P., inzh.; MEL'NIKOV, N.V.; MUDRIK, N.G., inzh.; NIKONOV, G.P., kand.tekhn.nauk; ORLOV, Ye.I., inzh.; POTAPOV, M.G., kand.tekhn.nauk; PRISZDSKIY, G.V., inzh.; RZHEVSKIY, V.V., prof., doktor tekhn.nauk; RYAKHIN, V.A., kand.tekhn.nauk; SIMKIN, B.A., kand.tekhn.nauk; SITNIKOV, I.Ye., inzh.; SOROKIN, V.I., inzh.; SPASYUK, V.N., kand.tekhn.nauk; STAKHEVICH, Ye.B., inzh.; SUSHCHENKO, A.A., inzh.; TYUTIN, I.F., inzh.; TYMOVSKIY, L.G., inzh.; FISENKO, G.L., kand.tekhn.nauk; FURMANOV, B.M., inzh.; SHATAYEV, M.G., inzh.; SHESHKO, Ye.F., prof., doktor tekhn.nauk; TERPIGOREV, A.M., glavnyy red. [deceased];

(Continued on next card)

ALATORTSEV, S.A.---(continued) Card 2.

KIT, I.K., zastitel' glavnogo red.; SHESHKO, Ye.F., zastitel' otv.red.; BUGOSLAVSKIY, Yu.K., red.; BYKHOVSKAYA, S.N., red.; DIONIS'YEV, A.I., kand.tekhn.nauk, red.; KOZIN, Yu.V., red.; SOKOLOVSKIY, M.M., red.; YASTREBOV, A.I., red.; DEMIDYUK, G.P., kand.tekhn.nauk, red.; KRIVSKIY, M.N., kand.tekhn.nauk, red.; LYUBIMOV, B.N., inzh., red.; MOLOKANOV, P.L., inzh., red.; REISH, A.K., inzh., red.; RODIONOV, L.Ye., kand.tekhn.nauk, red.; SLAVUTSKIY, S.O., inzh., red.; TRAKHMAN, A.I., inzh., red.; TRYMOV-SKIY, L.G., inzh., red.; FIDEL'EV, A.S., doktor tekhn.nauk, red.; SHUKHOV, A.N., kand.tekhn.nauk, red.; TER-IZRAEL'YAN, T.G., red. izd-va; PROZOROVSKAYA, V.L., tekhn.red.; KONDRAT'YEVA, M.A., tekhn.red.

(Continued on next card)

ALAFORTSEV, S.A.---(continued) Card 3.

[Mining; an encyclopedic dictionary] Gornoe delo; entsiklopedicheskii spravochnik. Glav.red.A.M.Terpigorev. Chleny glav.red.A.I.Baranov i dr. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu. Vol.10. [Mining coal deposits by the open-cut method] Razrabotka ugol'nykh mestorozhdenii otkrytym sposobom. Redkollegia toma; N.V.Mel'nikov i dr. 1960. 625 p.

(MIRA 13:2)

1. Chlen-korrespondent AN SSSR (for Mel'nikov).
(Coal mines and mining) (Strip mining)

S/049/62/000/008/002/003
1046/1246

AUTHORS: Belousov, V.G., Vol'vovskiy, B.S., Vol'vovskiy, I.S. and Ryaboy, V.Z.

TITLE: Experimental investigation of the registration of deep-reflected waves

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya geofizicheskaya, no. 8, 1962, 1034-1044

TEXT: A report on the deep seismic sounding with reflected (subcritical) waves carried out in 1960-1961 in the South-Eastern Turkmenia over a 120 km profile. The noise waves were eliminated by using directional reception: seismoreceivers and sources of seismic vibrations were grouped together (9 receivers spaced evenly over a linear distance of 400 m, each group removed by 100 m from its neighbors). Comparison of the results with the data obtained in 1958 in deep seismic sounding with reflected (hypercritical) and leading waves shows good agreement in general features on the seismograms, though subcritical reflection is better in detecting fine details. It is

Card 1/2

Experimental investigation of the registration....

recommended to use as far as possible a combination of the two methods. There are 8 figures.

SUBMITTED: February 26, 1962

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki (The All-Union Scientific Research Institute of Geophysical Methods of Prospecting) ✓

Card 2/2

BELOUSOV, V.G.; VOLVOVSKI, B.S. [Vol'vovskiy, B.S.]; VOLVOVSKI, I.S.
[Vol'vovskiy, I.S.]; REABOI, V.Z.

Experimental research on the registering of the waves reflected
by depth. Analele geol geogr 17 no.3:51-64, J1-8 '63.

BELOUSOV, V. I.

CHERCHENKO, G. V., NIKOLAYEV, V. M., BEZRUKOV, Ya. G. and BELOUSOV, V. I.

"The Determination of the Pressure of Saturated Petroleum Crudes in Strata."

report presented at the 6th Sci. Conference on the Application of Ultrasound
in the Investigation of Matter, 3-7 Feb 1958, organized by Min. Education
RSFSR and Moscow Oblast Pedagogic Inst. im N. K. Krupskaya.

BELOUSOV, V.I.

PHASE I BOOK EXPLOITATION SOV/5644

Vserossiyskaya konferentsiya professorov i prepodavateley pedagogicheskikh institutov

Primeneniye ul' traakustiki k issledovaniyu veshchestva. vyp. 10. (Utilization of Ultrasonics for the Investigation of Materials. no. 10) Moscow, Izd-vo MOPI, 1960. 321 p. 1000 copies printed.

Eds.: V. F. Nozdrev, Professor, and B. B. Kudryavtsev, Professor.

PURPOSE: This book is intended for physicists and engineers interested in ultrasonic engineering.

COVERAGE: The collection of articles reviews present-day research in the application of ultrasound in medicine, chemistry, physics, metallurgy, ceramics, petroleum and mining engineering, defectoscopy, and other fields. No personalities are mentioned. References accompany individual articles.

Cherchenko, G. V., V. M. Nikolayev, Ye. T. Bezrukov, and V. I. Belousov (Giprovostok nefi' - State Institute for the Design and Planning of Petroleum Industry Establishments in the Eastern Regions). First Results of the Use of the Ultrasonic Method in Determining the Saturation Pressure of Stratified Petroleum in Sredneye Povolzh' ye

OGORODOV, N.V.; BELOUSOV, V.I.

Some recent data on the Kharchinskiy and Zarechnyy Volcanoes.
Biol.Vulk.sta. no.31:46-51 '61. (MIRA 15:2)
(Kharchinskiy Volcano) (Zarechnyy Volcano)

L 18379-63
ACCESSION NR: AP3001224

EFP(c)/EWP(q)/EWT(m)/BDS
AFFTC/ASD Pr-4 WM/JD/JW
S/0078/63/008/006/1520/1522

AUTHOR: Akishin, P. A.; Belousov, V. I.; Sidorov, L. N.

TITLE: Vapor pressure of zirconium tetrafluoride

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 6, 1963, 1520-1522

TOPIC TAGS: vapor pressure, zirconium tetrafluoride, mass spectrometry, heat of sublimation

ABSTRACT: Vapor pressure of ZrF_4 was measured by mass spectrometry. In the temperature interval 681-913K, $\lg p = 13.5571 - 12430/T$. Value obtained for heat of sublimation agrees with that obtained by K. A. Sense, Snyder and Gilbert (J. phys. chem., 58, 995, 1954); also, Sense and Snyder, Glegg. (U.S. atomic energy comp. AEC-3708). However, vapor pressure value obtained was higher than that in above reference, and lower than that of S. Kantor, Newton, Crimes and Blackenship (J. phys. chem. 62, 96, 1958). Orig. art. has: 2 tables, 2 figures, 5 equations.

ASSOCIATION: none

SUBMITTED: 26Sep62

SUB CODE: 00

Card 1/1

DATE ACQ: 01Jul63
NO REF SOV: 002

ENCL: 00
OTHER: 003

64

ACCESSION NR: AP4011447 S/0076/64/038/001/0146/0150

AUTHORS: Sidorov, L. N. (Moscow); Akishin, P. A. (Moscow); Belousov, V. I. (Moscow); Shol'ts, V. B. (Moscow)

TITLE: Mass spectrometric study of the thermodynamic properties of the NaF-ZrF₄ system (Section 1)

SOURCE: Zhurnal fiz.khim, v. 38, no. 1, 1964, 146-150

TOPIC TAGS: complex fluorides, sodium fluoride, zirconium fluoride, fluoride mass spectrometry, NaF-ZrF₄ system

ABSTRACT: This work was prompted by earlier indications that complex fluorides of alkali and polyvalent metals exist in their gas phases. Inconsistency of the vapor pressure method with other methods induced the authors to undertake a mass spectrometric investigation with the aid of a MS-4 instrument. As a result of observations and extensive mathematical derivations, curves of ionic currents were plotted and equations derived for the dependence of NaF monomer, dimer and trimer vapor pressure on temperature. In saturated vapor of the NaF-ZrF₄ system at 877C, a NaZrF₅ molecule was found which upon ionization⁴

Card 1/2

ACCESSION NR: AP4011447

produces a Na^+ ion. Orig. art. has: 1 Figure, 12 Formulas, 3 Tables.

ASSOCIATION: Moskovskiy gosudartstvennyy universitet im. M. V.
Lomonosova (Moscow State University)

SUBMITTED: 16Apr63

DATE ACQ: 14Feb64

ENCL: 00

SUB CODE: CH

NR REF SOV: 006

OTHER: 011

Card 2/2

SIDOROV, L.N.; AKISHIN, P.A.; BELOUSOV, V.I.; SHCHITS, V.B.

Mass spectrometric study of the thermodynamic properties of the
NaF - ZrF₄ system. Part 2. Zhur. fiz. khim. 38 no.5:1173-1181
My '64. (MIRA 18:12)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
Submitted May 24, 1965.

SVETLICHNYI, V.A., Geroy Sotsialisticheskogo Truda, zven'yevoy;
PERVITSKIY, V.Ya., Geroy Sotsialisticheskogo Truda, zven'yevoy;
BELOUSOV, V.K.

Collective and state farms need such a machine. Zashch.rast.ot
vred.i bol. 7 no.6:14 Je '62. (MIRA 15:12)

1. Kubanskiy nauchno-issledovatel'skiy institut ispytaniya traktorov
i sel'skokhozyaystvennykh mashin (for Svetlichnyy, Pervitskiy).
2. Glavnyy agronom kolkhoza imeni Lenina, Novo-Kubanskiy rayon,
Krasnodarskogo kraya (for Belousov).
(Kuban--Spraying and dusting equipment)

FANFARONI, F.D.; BOGACHEV, G.S.; BELOUSOV, V.K.

Foliar feeding of winter crops. Zemledelie 26 no.8:42-50 Ag '64.

(MIRA 17:11)

1. Armavirskaya opyt'naya stantsiya Vsesoyuznogo nauchno-issledovatel'skogo instituta mekhanizatsii sel'skogo khozyaystva (for Fanfaroni, Bogachev). 2. Glavnyy agronom kolkhoza imeni Lenina Novokubarskogo rayona, Krasnodarskogo kraya (for Belousov).

Subject : USSR/Aeronautics - meteorology AID P - 5220
Card 1/1 Pub. 135 - 6/26
Authors : Belousov, V. M., Eng.-Lt. Col., Yu. V., Sobolev, Eng.-Maj.,
and S. M. Sadovskiy, Eng.-Maj.
Title : Our experience in meteorological safeguarding of flights
under complex conditions.
Periodical : Vest. vozd. flota, 11, 28-33, N 1956
Abstract : Organization of meteorological service for the safe-
guarding of flights in Soviet Air Force units is described
by the authors. The article is of informative value.
Institution : None
Submitted : No date

BELOUSOV, V.M., polkovnik tekhnicheskoy sluzhby; SADOVSKIY, S.M., inzh.-podpol-
kovnik

A correct evaluation of the weather situation is essential. Vest.Vozd.
Fl. no.12:45-46 D '60. (MIRA 14:5)
(Meteorology in aeronautics)

PAVLYUK, V.S., tokar'; BELOUSOV, V.M., inzhener, redaktor.

[From the experience of a lathe worker and tool maker] Iz opyta
raboty tokaria-instrumental'shchika. Pod red. V.M.Belousova.
Sverdlovsk, Gos. nauchno-tekhn. izd-vo mashinostroit.i sudostroit.
lit-ry [Uralo-Sibirskoe otd-nie] 1953. 10 p. (MLRA 7:3)
(Turning)

SOV/123-59-16-63793

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 16 p 25 (USSR)

AUTHOR: Belousov, V M

TITLE: Problems in Measuring Porosity

PERIODICAL: Tr. Sibirsk. fiz.-tekh. in-ta, 1958, vyp. 36, pp 249-255

ABSTRACT: The full or actual porosity (P), which is defined as the ratio of the volume of all pores to the volume of the sample may serve as an objective characteristic of a porous material. Various methods of determining P are considered. The measuring of P by pycnometric weighing requires much time and labor. Microscopic methods of P investigation are less labor-consuming and, besides quantitative estimates, give an idea about the dimensions and the shape of the pores. The full P is connected with the linear P, which is determined by microscopic measurements by the simple correlation of proportionality. By calculations the numerical value of the coefficient of proportionality for ceramic material was established. If the coefficient is known the full P of the material is calculated according to the results of microscopic measurements.

Card 1/1

B.A.M.

BELOUSOV, V.M.

Calculation of the granulometric composition of particles to
ensure maximum compactness of sintered articles. Izv. TPI 95:
198-205 '58. (MIRA 14:9)
(Granular materials) (Powder metallurgy)

S/144/60/000/05/011/014
EO41/B235*Vladimir Mikhaylovich*AUTHOR: Belousov, V.M., AspirantTITLE: Application of Phase Transformers to Electrical
Instrumentation, Automation and Remote ControlPERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
Elektromekhanika, 1960, Nr 5, pp 108-122 (USSR)

ABSTRACT: Three kinds of transformer are distinguished: phase-rotators (for polar-coordinate systems); phase-shifters (for rectangular-coordinate systems); passive circuits for changing the number of phases in a system. Fig 1 shows an example of the second type as proposed by Professor L. F. Kulikovskiy (Ref 1) in the form of a compensator. The balance indicator, 5, has stator and rotor windings. The former is fed from the transformer, 8, through the reversing switch, 7. The latter is connected to the voltage dividers 1, 2 connected to windings 3, 4 on transformer 8. The vector diagram is Fig 2. An electronic phase-sensitive detector has been proposed in Ref 2 and automation of the balancing process in Ref 3. A simplified vector-meter constructed on a similar principle is in Fig 3, where the quantity to be

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①

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Application of Phase Transformers to Electrical Instrumentation,
Automation and Remote Control

measured is applied to the moving coil and the field winding may be connected to "in-phase" or "quadrature" supplies. The main disadvantage of this arrangement is the variation of error with frequency. Fig 4 is a vectormeter in which the moving system has two degrees of freedom. The stator winding, fed from a 3-phase supply produces a rotating field. The rotor, connected to the single-phase voltage to be measured carries a small mirror illuminated by the lamp, 6. When all connections are made, the reflected beam of light is deflected by an amount which measures the amplitude of the single-phase supply and in a direction which indicates its phase. The 3-phase supply is derived from a single-phase source by a method developed by the author and A. A. Stepanyan (Ref 4). The RC network 8 serves to compensate for the inductance of the moving coil. The phase-conversion network and its vector diagram are in Fig 5. Using the more specific circuit of Fig 6, design formulae for the elements are given in Eq (5), where k is the conversion coefficient. The latter is plotted in

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Fig 7 against phase-shift angle. After from the purely engineering considerations of weight, size and dissipation the two most interesting parameters are m and η , the apparent and real-power efficiencies. These are given by Eqs (12) and (13). Fig 8 shows a bridge-connected version of the circuit, the design formulae being Eq (16) for the RC-type and Eq (17) for the RL-type. These expressions are also valid for the circuit of Fig 9, which does not require a centre-tapped source. The values of m and η are Eqs (27) and (28). Corresponding values are also given in Eqs (32) and (33) for the single-to-three phase convertor of Fig 11, whose design formulae are Eq (31). In general, all the circuits considered are subject to errors of two kinds: those due to component or operating tolerances and those due to external influences. For the first kind Eq (43) gives the amplitude and phase errors in differential form. Among the second kind the effects of variation

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in ambient temperature and supply frequency are briefly
discussed. There are 12 figures and 7 Soviet references.

ASSOCIATION: Kafedra avtomaticheskikh i izmeritel'nykh
ustroystv Kuybyshevskiy industrial'niy institut
(Chair on Automation and Instrumentation, Kuybyshev
Industrial Institute)

SUBMITTED: September 20, 1959

Card 4/4

BELOUSOV, V.M., inzh.; VIDMANOV Yu.I., inzh.; STEPANYAN, A.A., inzh.
UVAROV, G.A., kand.tekhn.nauk; FEDOROV, V.N., inzh.; SHESTAKOV,
B.I., kand.tekhn.nauk

Measuring devices and methods for measuring pulsations in boiler
furnace systems. Izv. vys. ucheb. zav.; energ. 4 no.3:49-52
Mr '61. (MIRA 14:3)

1. Kuybyshevskiy industrial'nyy institut imeni V. V. Kuybysheva.
Predstavlena kafedroy teploenergeticheskikh ustanovok.
(Transducers) (Boilers)

ILLEGIBLE

ILLEGIBLE

BELOUSOV, V.M., starshiy prepodavatel'

Changes in ceramic materials under radiation. Stek. i ker.
20 no.8:40-44 Ag '63. (MIRA 16:11)

1. Tomskiy politekhnicheskiy institut imeni S.M. Kirova.

ILLEGIBLE

ILLEGIBLE

ILLEGIBLE

BELOUSOV, V.M.; MATSENKO, S.P.; GRAFENBERGER, A.S.

[Radar technology; survey of foreign patents] Radioloka-
tsionnaia tekhnika; obzor inostrannykh patentov. Moskva,
TSentr. nauchno-issl. in-t patentnoi informatsii i tekhniko-
ekon. issledovani, 1963. 33 p. (MIRA 18:5)

S/020/60/132/05/42/069
B004/B011

5,3200
5,1190

AUTHORS: Belousev, V. M., Gorokhovatskiy, Ya. B., Rubanik, M. Ya., Gershingorina, A. V.

TITLE: Catalytic Oxidation of Propylene¹ and Acrolein¹ on Copper Contact

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 5, pp. 1125-1128

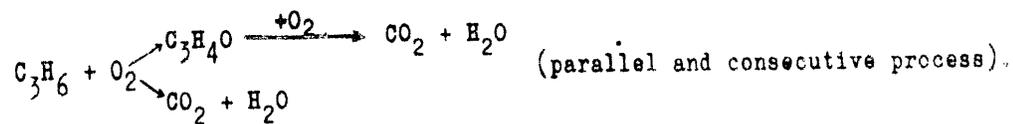
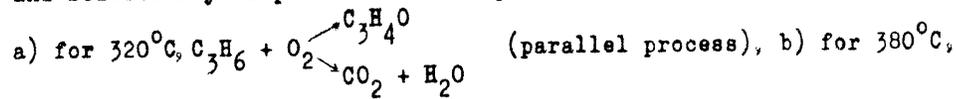
TEXT: This is the reproduction of a lecture delivered at the Vsesoyuznaya konferentsiya po organicheskomu katalizu (All-Union Conference on Organic Catalysis) on November 19, 1959. The authors investigated the dependence of the concentration of substances forming in the oxidation of propylene and acrolein on temperature and contact duration. The catalyst was copper oxide applied to carborundum; the reaction took place at 300-400°C and contact times of 0.4-4.0 sec. For comparison purposes, experiments were also conducted without a catalyst. The resulting CO₂ was either absorbed in titrated Ba(OH)₂, or, like C₃H₆, O₂, and CO, determined by means of ✓

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Catalytic Oxidation of Propylene and Acrolein
on Copper Contact

S/020/60/132/05/42/069
B004/B011

the BTM-2^{2b} (VTI-2) gas analyzer. Acrolein was determined by means of the bromide-bromate method. Experimental data are given in Table 1. Fig. 1 shows for C_3H_6 the dependence of the amount of the resulting CO_2 and C_3H_4O on temperature and contact duration τ , and Fig. 2 the dependence of the selectivity of oxidation on the same conditions. At $320^\circ C$, the amount of CO_2 and C_3H_4O increases steadily with τ , with the selectivity remaining constant. At $380^\circ C$, the concentration of C_3H_4O at $\tau = 1.2$ sec reaches a maximum, while the CO_2 concentration grows steadily with τ , and selectivity drops. The following reactions are derived therefrom:



Catalytic Oxidation of Propylene and Acrolein
on Copper Contact

S/020/60/132/05/42/069
B004/B011

The oxidation of acrolein was investigated on catalysts with various copper contents (9 g/l and 2.5 g/l) (Figs. 3, 4). Here as well, the parallel process was observed at low temperatures, the parallel-consecutive process at higher ones. A study of the effect of differently treated catalysts (with H_2 , O_2 at various temperatures and various heating durations) revealed (Table 2) that the reduced catalyst oxidizes the acrolein more slowly than the oxidized catalyst. The selectivity of the catalysts increasing with time in the oxidation of propylene is thus explained by the partial reduction of the catalyst occurring during the reaction, which favors the formation and the stability of acrolein. There are 4 figures, 2 tables, and 8 Soviet references.

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AUTHORS: Belousov, V. M., Gorokhovatskiy, Ya. B., Rubanik, M. Ya., and Gershingorina, A. V.

TITLE: Study of the kinetics of the catalytic oxidation of propylene to acrolein by means of the circulating flow

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 6, 1961, 1396-1398

TEXT: The authors wanted to complete the data on the kinetics of the oxidation of propylene to acrolein by means of a cuprous catalyst. The circulating-flow method was employed for the purpose. The data presented in Table 1 show that raising the rated flow to over four times remains without an effect upon the rate W_1 of acrolein formation, upon W_2 of the CO_2 formation, upon the transformation degree X_{O_2} of oxygen, and the selectivity $S_{C_3H_6}$.

Hence, the experimental data were not distorted by diffusion effects. The kinetics of the process was studied by means of a catalyst containing 2.4 g Cu per liter. [Abstracter's Note: no information is supplied regarding

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composition and preparation of the catalyst]. The carborundum carrier, grain size 2-3 mm, was large-porous (mean diameter $6 \cdot 10^{-2}$ cm). Some of the experimental data are presented in Table 2. The formation of acrolein and CO_2 was found to be proportional to the O_2 concentration, and to be little dependent upon the propylene concentration. With constant concentration of the initial substances in the cycle, the formation rate of $\text{C}_3\text{H}_4\text{O}$ and CO_2 drops with rising concentration of these oxidation products, this fact being indicative of their inhibiting action. With constant propylene concentration the rate W_1 of acrolein formation obeys the equation $W_1 = k_1 [\text{O}_2] / (1 + b\Delta[\text{O}_2])$; the formation rate W_2 of CO_2 obeys the equation $W_2 = k_2 [\text{O}_2] / [\text{C}_3\text{H}_4\text{O}]^{0.7}$. $[\text{O}_2]$ is the oxygen concentration in the cycle, $\Delta[\text{O}_2]$ is the decrease of oxygen concentration, k_1 , k_2 , and b are constants. The term $b\Delta[\text{O}_2]$ takes account of the inhibiting action. The invariable values of k_1 and k_2 on a change of the velocity of flow by the sevenfold, of $[\text{O}_2]$ by the fivefold, confirm the validity of these equations. Selectivity in-

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creases somewhat with rising propylene concentration (Fig. 1). The activation energy E_1 for the acrolein formation, E_2 for the CO_2 formation were in the temperature range between 335-380°C: $E_1 - E_2 = 36 \pm 2.5$ kcal/mole;

$b = 4.25 \exp(-10000/RT)$ [Abstracter's Note: printing error in the original text]. To clarify which of the oxidation products have an inhibiting action, individual products were removed from the cycle. As may be seen from Table 3, the reaction rate rose to the 2.5 to 3-fold on removal of $\text{C}_3\text{H}_4\text{O}$ and H_2O . If all reaction products were removed, the transformation degree of O_2 remained the same as in the case where only $\text{C}_3\text{H}_4\text{O}$ and H_2O were removed. CO_2 is thus without effect upon the reaction rate. Data obtained confirm the results by O. V. Isayev and L. Ya. Margolis (Kinetika i kataliz, 1, no. 2, 237 (1960)), according to which the oxidation rate of propylene is linearly dependent upon the oxygen concentration. They contradict, however, other conclusions reached by those researchers, according to which the oxidation products have no inhibiting action, and the propylene concentration is without any effect. The authors conclude from their data that a parallel

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